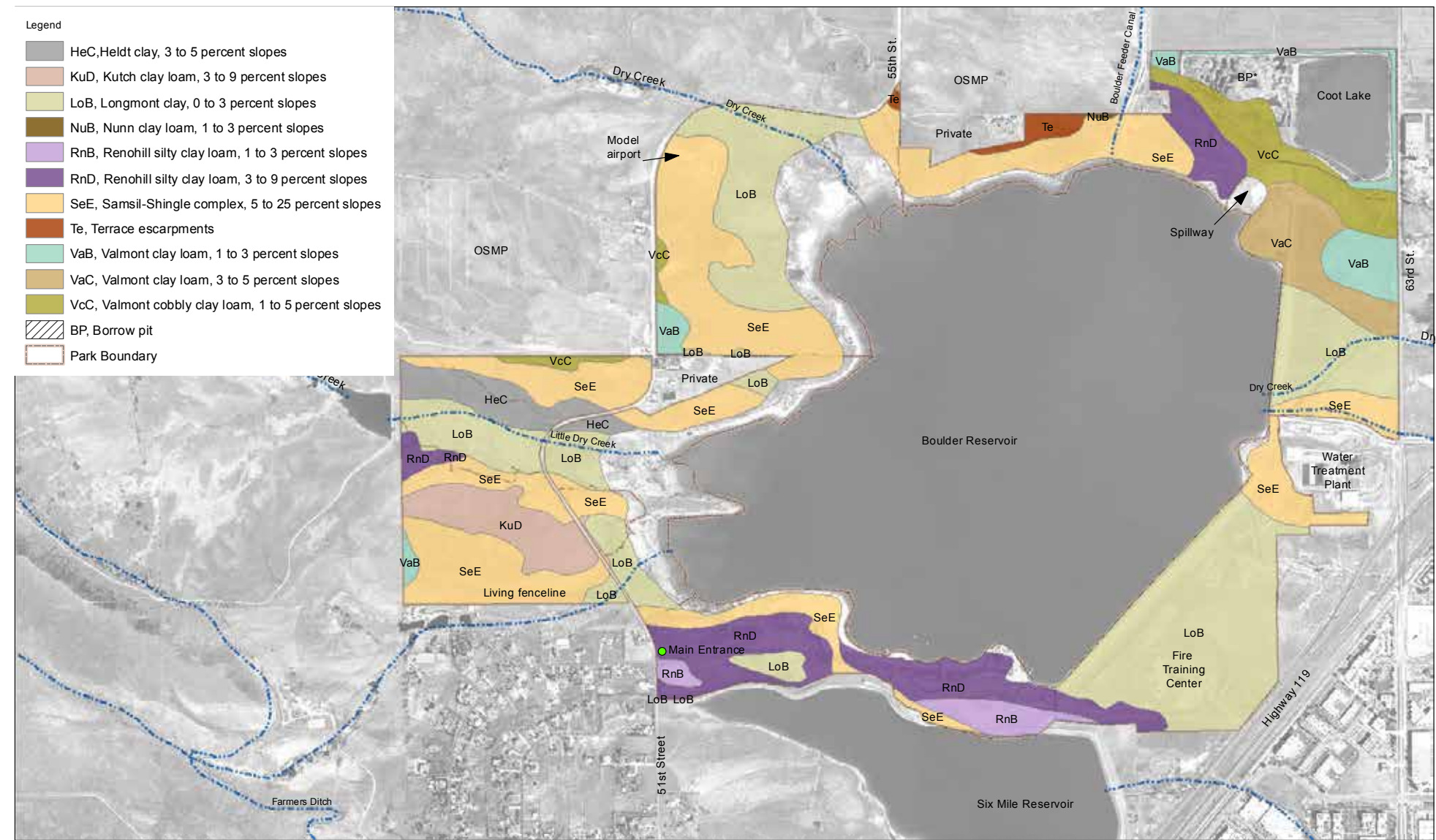
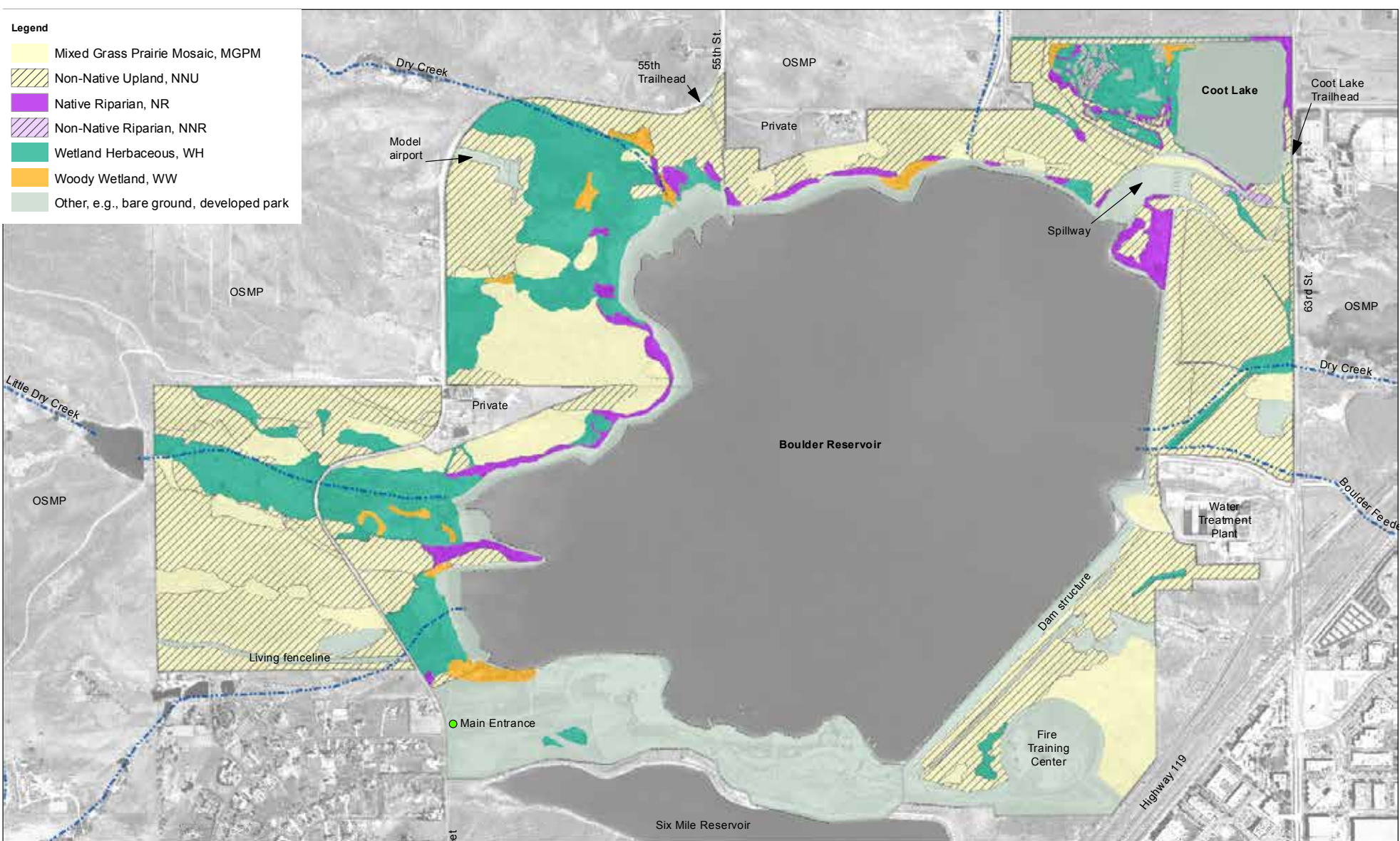


Boulder Reservoir: WHAT WE LEARNED

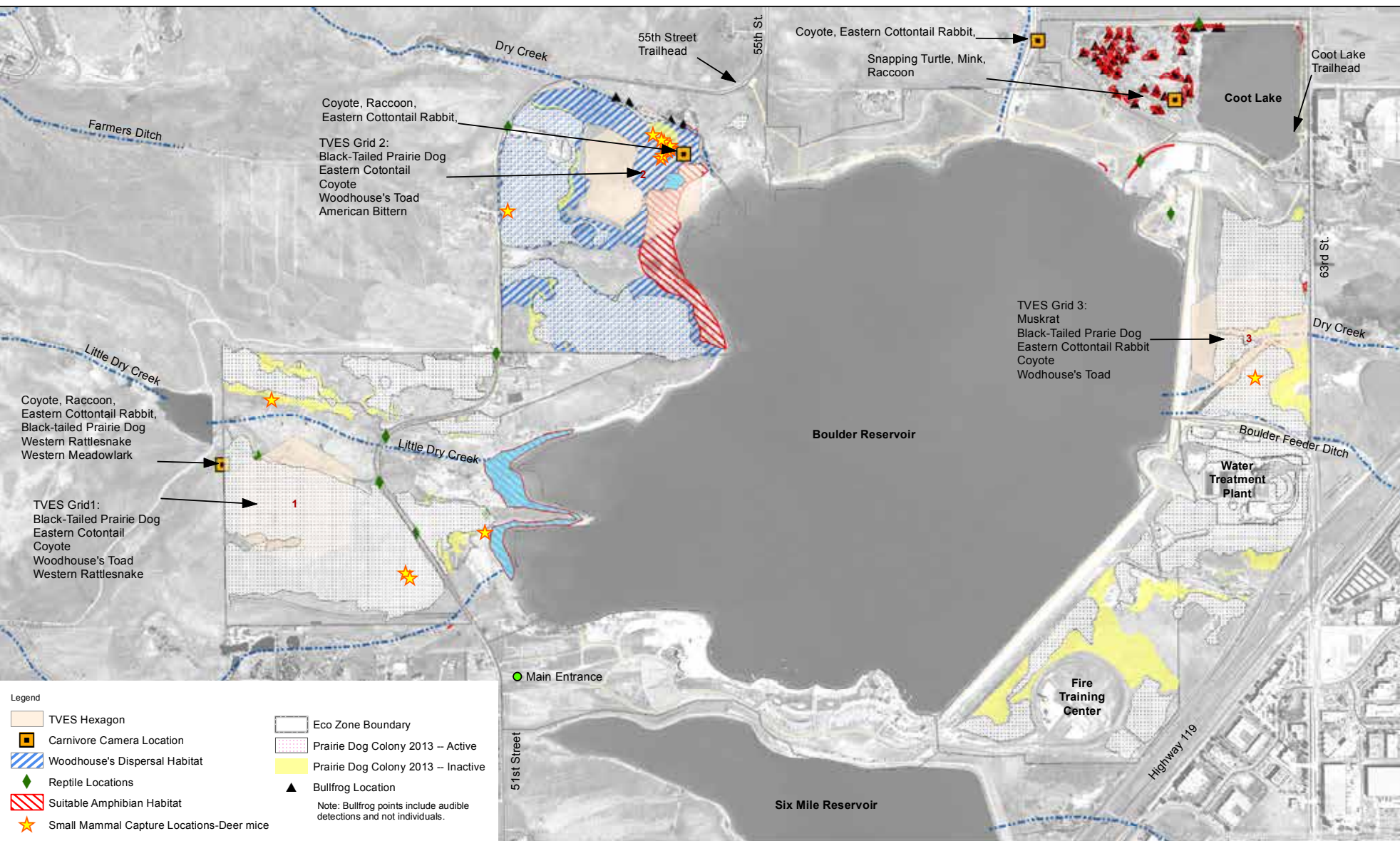
Indicators of Ecological Condition at Boulder Reservoir



Soils Inventory



Plant Community Inventory



Wildlife Inventory

INDICATORS	WILDLIFE RATINGS			
	Very Good	Good	Fair	Poor
<b>Birds: Grassland Nesting Species</b>	Confirmed or Probable (M, P, T, C)* breeding of >3 indicator species -- Grasshopper Sparrow, Vesper Sparrow, Lark Sparrow, Bobolink, and Horned Lark.	Confirmed or Probable (M, P, T, C)* breeding of 2-3 indicator species -- Grasshopper Sparrow, Vesper Sparrow, Lark Sparrow, Bobolink, and Horned Lark.	Probable (M, P, T, C)* or possible breeding of one indicator species -- Grasshopper Sparrow, Vesper Sparrow, Lark Sparrow, Bobolink, and Horned Lark.	No Probable or Possible indicator species breeders surveyed.
<b>Birds: Raptors</b>	Confirmed or Probable (M, P, T, C)* of Harrier, Bald Eagle, Swainson's Hawk, Osprey, Burrowing Owl, and Short-eared Owl.	Confirmed or Probable (M, P, T, C)* breeding of 2-3 indicator species -- Northern Harrier, Bald Eagle, Swainson's Hawk, Osprey, Burrowing Owl, and Short-eared Owl.	Probable (M, P, T, C)* or possible breeding of one indicator species -- Northern Harrier, Bald Eagle, Swainson's Hawk, Osprey, Burrowing Owl, and Short-eared Owl.	No Probable or Possible breeders of focal or common raptor species observed.
<b>Birds: Waterfowl and Grebes</b>	Observation of sensitive species -- Eared Grebe. Confirmed or Probable (M, P, T, C)* breeding of 3 or more indicator species e.g., Pied-billed Grebe, Cinnamon Teal, and Blue-winged Teal.	Confirmed or Probable (M, P, T, C)* breeding of 1-2 indicator species e.g., Pied-billed Grebe, Cinnamon Teal, and Blue-winged Teal.	Possible breeding of at least one indicator species e.g., Pied-billed Grebe, Cinnamon Teal, and Blue-winged Teal.	Confirmed or Probable (M, P, T, C)* breeding of common species only -- Mallard, Canada Goose, and American Coot.
<b>Birds: Waders &amp; Shorebirds</b>	Confirmed or Probable (M, P, T, C)* breeding of at least 1 sensitive species -- American Bittern, Least Bittern, White-faced Ibis, Wilson's Phalarope. Confirmed breeding of 3 or more indicator species e.g., Great Blue Heron, Black-crowned Night Heron, American Avocet, Spotted Sandpiper.	Confirmed or Probable (M, P, T, C)* breeding of 1-2 indicator species e.g., Great Blue Heron, Black-crowned Night Heron, American Avocet, Spotted Sandpiper.	Possible breeding of 1-2 indicator species e.g., Great Blue Heron, Black-crowned Night Heron, American Avocet, Spotted Sandpiper.	No Probable or Possible breeders of expected/common waders or shorebirds species observed.
<b>Breeding Bird Diversity</b>	More than 20 native breeding bird species per plot	16-20 native breeding bird species per plot	11-15 native breeding bird species per plot	10 or fewer native breeding bird species per plot
<b>Percentage of native species</b>	100% of mean individuals per plot	95-99% of mean individuals per plot	90-94% of mean individuals per plot	89% or more of mean individuals per plot
<b>Percentage of urban-adapted species</b>	Less than 10% of mean individuals per plot	11-20% of mean individuals per plot	21-30% of mean individuals per plot	31% or more of mean individuals per plot
<b>Amphibians</b>	Presence of Northern Leopard Frog (S.C.). Confirmed breeding of Woodhouse Toad and Western Chorus Frog (native). Confirmation of breeding annually in locations offering suitable habitat (influenced by water level).	Confirmed occurrences and probable breeding of Woodhouse Toad and Western Chorus Frog.	Confirmed occurrences of both native and non-native (bullfrog) species.	No native frogs or toads observed or heard. Bullfrogs present.
<b>Reptiles</b>	Confirmed presence of more than three species native to Boulder County including but not limited to the Snapping Turtle, Painted Turtle, Spiny Softshell Turtle, Racer, Western Terrestrial Garter Snake, Plains Garter Snake, and Western Rattlesnake.	At least 3 native species confirmed.	One to two native species.	Few to no occurrences of native reptile species.
<b>Small Mammals</b>	Confirmed presence of more than 5 native small mammal species. Monitoring of species richness and abundance (over 5 yrs) shows a stable to upward population trend.	Confirmed presence and likely breeding of three to five native small mammal species. Monitoring of species richness and abundance (over 5 yrs) shows a stable to upward population trend.	Confirmed presence only one native small mammal species. Monitoring of species richness and abundance (over 5 yrs) shows a decrease in total number of native species and a decrease in population trend.	No occurrence of native small mammal species.
<b>Carnivores</b>	Confirmed presence of greater than three native carnivore species (e.g., Coyote, Raccoon, American Badger, striped skunk) with broad habitat requirements. For aquatic habitats the presence of Mink.	At least three native carnivore species confirmed.	One to two common native carnivore species confirmed.	Few to no occurrences of native carnivore species confirmed.
<b>Butterflies and Skipper Habitat</b>	Grassland composition contains abundant occurrences of little and big bluestem for larval food.	Grassland composition contains moderate occurrences (of >8%) little and big bluestem for larval food.	Grassland composition contains few occurrences of little and big bluestem for larval food.	Grassland composition contains no little and big bluestem for larval food.
<b>Historical Presence/Restoration Potential</b>	List of species that were historically present; Almost no decrease in diversity from historic; w/high potential for restoration/recovery	Minor decrease in diversity from historic; Moderation potential for recovery	Moderate decrease in diversity from historic; Limited potential for recovery	Significant decrease in diversity from historic; Recovery unlikely

\*CO Breeding Bird Atlas Codes for Probable: M-mating, P-pair, T-territory, C-circumscription  
Notes: Could add grassland dependent butterflies and skipper observations as indicators of grassland health in future if included in monitoring plan. See pp 6-7 of Grassland Plan for further discussion. Monitoring every 5-10 yrs with 2 consecutive years ea to assess trends.  
"Viable populations of Otter skipper (*Hesperia ottoe*), Cross-line skipper (*Polites origenes rhena*), Argos skipper (*Argyrodes argos iowa*), Dusted skipper (*Atrytonopsis hianna turneri*), and Regal fritillary (*Speyeria idalia*) are indicators of a healthy and functioning foothills grasslands system."

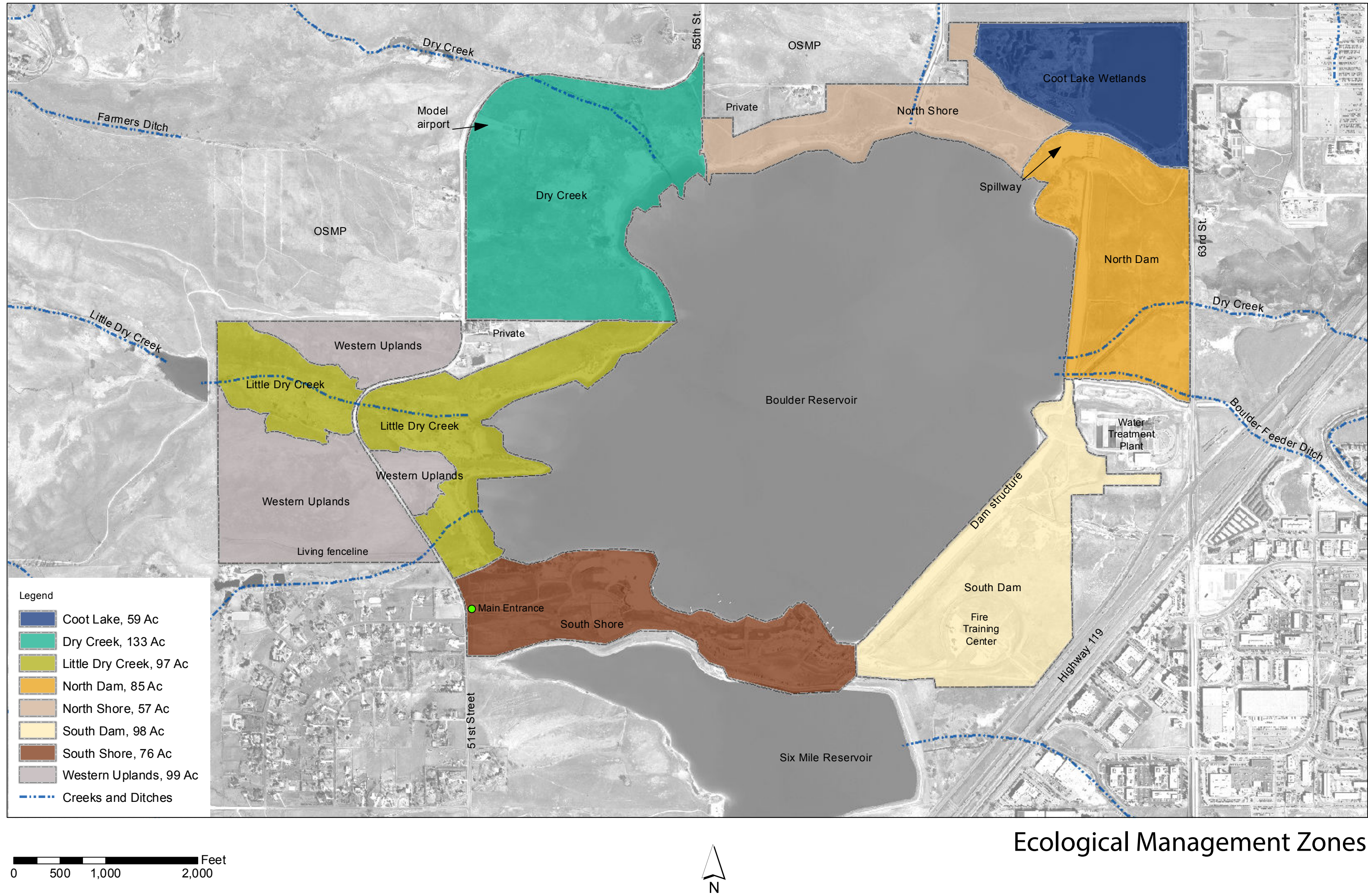
PLANT COMMUNITY	VEGETATION RATINGS			
	Very Good	Good	Fair	Poor
<b>Mixed Grass Native Prairie</b>	• Native grasses dominant with >4 indicator species such as blue grama, needle and thread, western wheatgrass, silver sage, fourwing saltbush, yucca, Junegrass, buffalograss, snakedgrass, scurfpea. • Nonnatives <5% cover. • Not disturbed or fragmented. • Connectivity of adjacent habitats allows natural ecological processes, e.g., wildlife foraging, movement, and migration. No barriers, e.g., roads, fences, trails.	• Native grasses dominant with 3 indicator species such as blue grama, needle and thread, western wheatgrass, silver sage, fourwing saltbush, yucca, Junegrass, buffalograss, snakedgrass, scurfpea. • Nonnatives <10% cover. • Disturbance is apparent but not enough to have a notable impact on species composition or soil compaction. • Adjacent systems surrounding habitat retain good connectivity with few barriers.	• 1-2 indicator species such as blue grama, needle and thread, western wheatgrass, silver sage, fourwing saltbush, yucca, Junegrass, buffalograss, snakedgrass, scurfpea. • Nonnatives, e.g., smooth brome, bindweed, cheatgrass, may be >10% cover but still controllable. • Disturbance is moderate. • Trails and roads may have an impact on species composition and soil compaction but restoration potential is good. • Adjacent systems surrounding habitat are fragmented by alteration with limited connectivity.	• Nonnatives dominant with little potential for control. • Very low cover by indicator species such as blue grama, needle and thread, western wheatgrass, silver sage, fourwing saltbush, yucca, Junegrass, buffalograss, snakedgrass, scurfpea. • Severe disturbance requiring extensive restoration activities. No connectivity.
<b>Native Riparian</b>	• Plains cottonwood and other native woody species >75%. >3 indicator species including plains cottonwood, sandbar willow, peachleaf willow, box-elder, chokecherry, Woods' rose, snowberry, currant. • Nonnatives negligible and, if present, have little potential for expansion. • Streambanks may have isolated spots of slumping, erosion, or vegetation removal. • Connectivity to adjacent habitats allows natural ecological processes, e.g., wildlife foraging, movement, and migration. No barriers, e.g., roads, fences, trails.	• Plains cottonwood dominant. • 2 indicator species include plains cottonwood, sandbar willow, peachleaf willow, box-elder, chokecherry, Woods' rose, snowberry, currant. • Low occurrence of nonnatives; potential for control or eradication is good. • Streambanks may have isolated spots of slumping, erosion, or vegetation removal. • Connectivity to adjacent habitats is good with few barriers.	• 1 indicator species such as plains cottonwood, sandbar willow, peachleaf willow, box-elder, chokecherry, Woods' rose, snowberry, currant. • Nonnatives may be widespread but may be contained or diminished with restoration. • Streambanks show enough alteration to have affected species composition, soil compaction, and erosion. • Limited connectivity. Some barriers and few natural ecological processes.	• Very low cover by indicator species. • Non-natives such as Russian-olive, Siberian elm, green ash dominant with little potential for control. • Shorelines are severely altered and restoration potential is low. • No connectivity.
<b>Native Herbaceous Wetland</b>	• Native herbaceous vegetation dominant with >3 indicator species such as swamp bluegrass, sedges, milkweed, narrow-leaved cattail. • Nonnatives negligible and, if present, have little potential for expansion. • No presence of species on the Boulder County Noxious Weed List. • Shorelines are not overly steep, denuded, or eroding. • Connectivity to adjacent habitats allows natural ecological processes, e.g., wildlife foraging, movement, and migration. No barriers, e.g., roads, fences, trails.	• Native herbaceous vegetation dominant with 2 indicator species such as swamp bluegrass, sedges, milkweed, narrow-leaved cattail. • Low occurrence of nonnatives; potential for control or eradication is good. Any species on the Boulder County Noxious Weed list may be quickly eradicated. • Shorelines may have isolated areas of slumping, sparse vegetation, and/or erosion. • Connectivity to adjacent habitats is good with few barriers.	• 1 indicator species such as sandbar willow, peachleaf willow, Bebb willow, shining willow. • Nonnatives may be widespread but may be contained or diminished with restoration. • Streambanks show enough alteration to have affected species composition, soil compaction, and erosion. • Limited connectivity. Some barriers and few natural ecological processes.	• Very low cover by indicator species such as swamp bluegrass, redtop bentgrass, sedges, milkweed, narrow-leaved cattail. • Nonnatives, e.g., teasel, curly dock, redtop bentgrass dominant with little potential for control. Species on the Boulder County Noxious Weed List are widely present. • Shorelines are severely altered and restoration potential is low. • No connectivity.
<b>Native Woody Wetland</b>	• Native species dominant. presence of indicator species such as sandbar willow, peachleaf willow, Bebb willow, shining willow. • Nonnatives negligible and, if present, have little potential for expansion. • Streambanks are not overly steep or denuded. • Connectivity to adjacent habitats allows natural ecological processes, e.g., wildlife foraging, movement, and migration. No barriers, e.g., roads, fences, trails.	• Native species dominant. presence of indicator species such as sandbar willow, peachleaf willow, Bebb willow, shining willow. • Low occurrence of nonnatives; potential for control or eradication is good. • Streambanks may have isolated spots of slumping, erosion, or vegetation removal. • Connectivity to adjacent habitats is good with few barriers.	• 1 indicator species such as sandbar willow, peachleaf willow, Bebb willow, shining willow. • Nonnatives may be widespread but may be contained or diminished with restoration. • Streambanks show enough alteration to have affected species composition, soil compaction, and erosion. • Limited connectivity. Some barriers and few natural ecological processes.	• Very low cover by native woody species. • Nonnatives, e.g., tamarisk, dominant with little potential for control. • Streambanks are severely altered and restoration potential is low. • No connectivity.
<b>Nonnative Riparian</b>			• Good restoration potential. Nonnatives are dominant but native species are sub-dominant and in sufficient numbers to provide propagules following nonnative eradication and seeding of natives. • Disturbance is moderate and can be minimized with management controls, e.g., fencing, signage, and education. • Streambanks/shorelines are either unaltered or can be fortified with minor planting. • There is at least some connectivity to other habitat of good or very good quality.	• <10% native species cover. • Nonnatives, e.g., teasel, Russian olive, reed canarygrass, smooth brome, dominant with little potential for control. • Streambanks are severely altered and restoration potential is low. • Low connectivity to other habitat in support of ecological processes.
<b>Nonnative Upland</b>			• Good restoration potential. Nonnatives are dominant but native species are sub-dominant and in sufficient numbers to provide propagules following nonnative eradication and seeding of natives. • Disturbance is moderate and can be minimized with management controls, e.g., fencing, signage, and education. • Prairie dogs have the potential to exceed the carrying capacity of the site. • There is at least some connectivity to other habitat of good or very good quality.	• <10% native species cover. • Nonnatives, e.g., smooth brome, bindweed, cheatgrass, horehound dominant and with potential to alter structure and composition. • Disturbance is extensive throughout. Trails and roads significant enough to have notable impact on species composition and soil compaction, and restoration potential is low. • Prairie dogs have exceeded the carrying capacity of the site. • Low connectivity to other habitat in support of ecological processes.

Boulder County and Colorado National Heritage Program birds of special concern (2013 breeding season : May-July)

Boulder Reservoir: 2013 Environmental Inventory & Assessment



Boulder Reservoir: *HOW IT RELATES*



Ecological Management Zones

Ecological Management Zones: Condition Ranking

plant/animal communities:	Management Zone								OVERALL CONDITION	Total Score	Total Possible	TOTAL %	
	Western Uplands	Dry Creek	Little Dry Creek	North Shore	Coot Lake	North Dam	South Dam	South Shore					
Native Wetland Herbaceous (WH)	3	3	2	3	3	3	1	1	Good	19	32	59%	
Mixed Grass Native Prairie (MGPM)	3	2	2	2	NA	3	1	NA		Good	13	24	54%
Native Riparian (NR)	NA	3	3	2	3	NA	NA	NA		Good	11	16	69%
Native Woody Wetland (WW)	NA	3	2	2	3	NA	NA	NA		Good	10	16	63%
Birds: Grassland Nesting Species	NA	2	1	1	2	2	2	2		Fair	12	28	43%
Raptors	1	3	3	1	1	1	1	1		Fair	12	32	38%
Waterfowl and Grebes	1	4	1	1	3	1	1	1		Fair	13	32	41%
Birds: Waders & Shorebirds	1	4	4	2	4	1	1	2		Good	19	32	59%
Percentage of native bird species	NA	3	3	4	3	3	4	2		Good	22	32	69%
Amphibians	1	2	1	1	2	1	1	1		Fair	10	32	31%
Reptiles	1	1	1	1	2	1	1	1		Fair	9	32	28%
Small Mammals	1	1	1	1	1	1	1	1		Poor	8	32	25%
Carnivores	2	2	2	1	3	1	1	1		Fair	13	32	41%
Zone Summary	Fair	Good	Fair	Fair	Good	Fair	Fair	Fair		Condition Summary	total sum of plant/animal community row based on current sitewide opportunity		
Management Zone Total:	14	33	26	22	30	18	15	13					
Management Zone Total Possible:	36	52	52	52	48	44	44	40	*Overall Condition Scores based on % of Possible for that target:				
Total %	27%	63%	50%	42%	58%	35%	29%	33%					

Very Good (4 points):

Good (3 points):

Fair (2 points):

Poor (1 point):

0-25%

26-50%

51-75%

76-100%

Suitable Visitor Opportunities (by Ecological Management Zone)

Type of Use from Master Plan	Active Rec.	Passive Recreation/Natural				Utility
	South Shore	Coot Lake <sup>2</sup>	North Shore	Western Uplands	Dry & Little	North & South
Hiking/Walking Trails	√	√ Outside of closures	√	No to maintain buffer for Prairie Dogs.	No other than 51 <sup>st</sup> access to North Shore	√
Dog Walking	√ Except from Mem.. Day- Labor Day	√ Outside of closures	√ Voice/Sight/Off-leash allowed	No	No	√
Wading	√	No.	No, except to control dog.	No	No	No
Dog Swimming	No. Concerns about water quality.	√ Outside of closures	No	No	No	No
Picnics/ Social Gathering	√	√	√	No	No	√
Wildlife and Scenery Viewing	√	√	√	From road	From road	√
Running	√	√	√	No	No	√
Biking	√	√ Outside of closures	√	No	No	√
Swimming	√	No	No	No	No	No
Boating	√	No	No, ANS concerns	No	No	No
Fishing	√	From the shore only	√	No	No	√
Parking/Access	√	East of 63 <sup>rd</sup>	√	No	No	No
Special Events <sup>3</sup>	√	No	No	No	No	No
Education Opportunities	√	√	√	√	√	√

- 1 Note, these are general recommendations about suitability with the expectation that details about levels of use/intensity, specific locations within zones, and implementation considerations will be provided in the SMP.
- 2 Suitability is for eastern/developed portion of Coot Lake; closures refers to wetlands on west side.
- 3 Currently, events occasionally occur at locations other than the South Shore. It is recommended the SMP re-evaluate and address special events using a set of more detailed suitability criteria based on e.g., the timing, duration, specific locations and numbers participants in relation to threats to priority habitat types and goals.

Protection Strategies to Minimize Recreational Impacts (by Best Opportunity Area)

Recreational Activity	Maximum Protection : Dry Creek, Little Dry Creek, Western Uplands, Coot Lake Wetlands (west side)	Moderate Protection: Coot Lake (east side), North Shore, North Dam and South Dam	Minimum Protection: South Shore
Hiking and dog walking	Year-round closures, fencing and gates, ranger patrol, education signage and outreach. Restoration and improvements of historic and existing impacts, e.g., from social trails	Vegetative barriers, ranger patrol, education signage and outreach	Signage and outreach
Special Events	Maintain trail and wildlife closures, restrict vehicle parking, and spectator locations, education and outreach, noise control	Select trail closures; education and outreach	Education and outreach
Biking	Year-round trail closures, ensure trails are located away from sensitive or critical habitats, restoration, ranger patrol, education signage and outreach	Seasonal trail closures, closures of higher-functioning or sensitive habitat, ranger patrol, education signage and outreach	Education signage and outreach
Boating	Establish buffer zones and setback distances to protect wetland, riparian, and shallow-water ecosystems and bird breeding and foraging areas; ensure hourly use is restricted to diminish noise pollution; investigate chemical pollution; disallow vehicles leaking any fluid	Investigate chemical pollution; disallow vehicles leaking any fluid. No boats in Coot Lake.	Investigate chemical pollution; disallow vehicles leaking any fluid
Swimming	Prohibit swimming.	Prohibit swimming.	Allowed and provide resource education signage and outreach
Fishing	Prohibit fishing.	Restrict equipment to hook and line gear; prohibit lead sinkers; educate anglers on humane handling of fish for catch & release	Education signage and outreach.
Parking Access	Prohibit parking within established distance of high quality habitat	Allow parking in designated locations and for certain events	Allowed parking and shuttle services for events



Boulder Reservoir: *HOW WE RESPOND*

*Management Objectives* and *Recommended Approaches* for Boulder Reservoir Conservation Goals:

Conservation Issues/Threats	Management Objectives	Recommended Approach
Goal 1: Maintain or expand size of existing native wetland, riparian, and mixed grass prairie mosaic plant communities.		
Invasive weed species encroachment occurs in native plant communities.	Reduce extent, abundance and diversity of invasive species.	Eradicate list A species (Purple loosestrife and Mediterranean sage) and continue annual program to reduce abundance of other priority noxious weed species (see Table 3) using Integrated Pest Management where possible.
Disturbances/trampling from trespass by humans and dogs.	Minimize adverse effects of current and future trail use, close selected existing social trails, and prevent establishment of spontaneous social trails.	Restrict active and passive recreation activities that could reduce size through trampling. Increase fencing, gates, signage along perimeters of Dry Creek and Little Dry Creek zones, including along road, 51 <sup>st</sup> Street trail, and parking area. Increase awareness of value of native plant communities through education and outreach.  Hire ranger to patrol native communities and engage in <i>year-round</i> active management of visitors and enforcement of dog control. At a minimum, employ patrols during weekends and in areas slated for maximum protection.
Habitat fragmentation occurs where road divides the Reservoir wetlands and drainages from areas to west.	Increase connectivity and prevent future fragmentation from new trail development.	Assess feasibility of avoidance e.g., through alternative trail route or alternate locations for activities and facilities  Work with partner agencies such as OSMP to discuss possible ways of expanding the extent of marsh area within the Dry Creek wetland, both upstream and downstream from N. 53rd St.
Prairie Dog encroachment into drier portions of wetland is occurring around west edge and along Dry Creek.	Balance the needs of multiple conservation targets	Work with city Wildlife Coordinator and OSMP to apply the designation criteria in the Grassland Ecosystem Management Plan to define prairie dog management criteria for colonies on the west side of the Reservoir.  Assess the potential to re-establish the moisture regime and/or establish buffers, (e.g., using physical barriers) to protect the vegetation in Dry Creek and Little Dry Creek wetland and riparian areas
Goal 2: Improve the condition of native wetlands, riparian and mixed grass prairie grassland communities in best opportunity areas.		
Diversity in native plant communities is only fair to good despite importance of area on city and county scale. Dominant native indicator species are often limited to 1-3 species	Identify and enhance priority vegetation patches based on their size, extent of monoculture, and habitat values (uniqueness, connectivity, etc.).	Increase native diversity by seeding additional native species such as blue grama and needle and thread in mixed grass prairie; and milkweed, bulrush, and sedges in wetlands  Increase diversity and size of riparian areas by planting other native species such as peachleaf willow, box-elder, chokecherry, Woods’ rose, snowberry, and currant.
Invasive species are often codominant.		Develop strategic weed management plan with focus on reducing occurrences, early and often, particularly in wetland plant communities in Dry Creek, Coot Lake, and Little Dry Creek.
Altered fire and wildlife grazing (natural disturbances) regimes	Decrease cover of non-native species in best opportunity areas that will benefit most from improvement.	Develop plan for pilot scale prescribed burn for cattails in Little Dry Creek and Dry Creek.
Altered flows due to impoundments in upstream portions of Dry Creek and Little Dry Creek may be causing negative impacts, e.g., reduced low flows during droughts	Increase low flows and/or increase extent of seasonally saturated soils e.g., in arctic rush areas exhibiting signs of drying	Evaluate potential to improve hydrology and sediment transport issues along drainages. Explore possible locations for shallow rock “media lunas” to slow drainage and encourage infiltration.

Conservation Issues/Threats	Management Objectives	Recommended Approach
Goal 3: Restore degraded, non-native uplands and riparian habitat.		
Non-native upland comprises 33% of the area of the Reservoir.	Restore native species diversity in uplands, beginning with maximum protection areas followed by moderate protection areas. Within these areas, start with patches that are easily reclaimed, and/or connect to existing good patches.	Prioritize restoration of grasslands in areas outside of established Prairie Dog colonies (and as opportunities arise following plague outbreaks) to create buffer around wetlands and connections between other native communities
Non-native riparian areas contain Russian-olive and tamarisk which are highly invasive	Eliminate non-native riparian plant communities.	Eliminate nonnative trees (Russian-olive) from riparian areas and replant with native species suited to the clay and clay loam soils. (In grasslands, no replacement necessary)
Bare ground and eroded areas from social trails is evident particularly in the North Shore.	Close social trails and maintain designated trails so that soils are stable and trampling and erosion areas do not occur.	Rationalize trail system (including relationship of social trails to new and planned trails) and obliterate redundant/unnecessary trails. Repair eroding trail, revegetate with native species, fence off during establishment. Provide education signage to protect restoration areas.
Goal 4: Maintain wildlife habitat to support species of concern and a diversity of native birds, amphibians, reptiles, and mammals		
Trespass, event noises and aeromodel activity can impact Northern Harrier nesting success since they are ground nesters particularly vulnerable to disturbance by roaming hikers and dogs.	Protect sensitive breeding bird habitat from disturbance by human activities <sup>14</sup> and their pets throughout April-August nesting season	(See Appendix C Table 18 for additional items) Establish 400 m buffer as reasonable minimal distance from Northern Harrier known or suspected nest locations.  Re-institute the dogs-on-leash regulation on trail surrounding marshes during Northern Harrier nesting season (April-August), or until observations determine that harriers aren't nesting or have fledged the site) including on the trail encircling the wetlands west of Coot lake. Heighten enforcement of dog regulations.  Close social trails and erect fences or rock barriers to discourage users and pets from wandering off trail Reduce areas of trampled ground and invasive weeds surrounding lake and marsh.  Expand the areas of protected cattail marshes and surrounding wetlands. For example, Lower Dry Creek west of 51st could be added to closure areas. Consider opportunities to relocate model airport.
Roughly half of the American Bittern nesting habitat in the county is in the wetlands around the Reservoir, including Coot Lake where off-leash dogs can roam.	Protect sensitive breeding bird habitat from disturbance by human activities <sup>15</sup> and their pets throughout April-July nesting season.	Limit human and domestic dog encroachment within 200 m of any active American Bittern nests to protect them from disturbance.  Expand the areas of protected cattail marshes and surrounding wetlands. For example, Lower Dry Creek west of 51st could be added to closure areas. Consider opportunities to relocate model airport.  Plan for ranger (city staff and/or volunteer naturalist) to improve enforcement of wildlife closures. Restrict human traffic passing near the Little Dry Creek and Dry Creek wetlands on the existing road right-of-way.
Burrowing owls have had low fledge rates of nests during the past 20 years in Boulder County, possibly caused by predation	Protection and conservation of prairie dog colonies around the Reservoir may contribute to future burrowing owl nesting success, especially if prairie dog colonies are relatively large and buffered from disturbance.	Identify high-value burrowing owl nesting areas either as a research project for a student or with volunteer resources.  Protect areas where burrowing owls are known to occur with the intent of increasing nesting opportunities.  Promote awareness of burrowing owl habitat needs to garner public support and facilitate enforcement.
Overall habitat quality for multiple groups of native species could degrade due to recreation impacts and invasive flora and fauna.	Maintain/improve good quality habitat, with the long-term, overall objective of maintaining suitable habitat for diverse assemblage of native and/or sensitive wildlife.	Promote increased awareness of habitat values and issues and develop education and outreach as part of management plan.  Implement vegetation and bird monitoring programs, either by staff or by volunteers.  Pilot test guided tours of wetlands for nature program to be led by city staff and/or volunteer naturalists.  Assess feasibility & effectiveness of bullfrog control, and continue with invasive plant control programs.  Develop adaptive management approach based on monitoring results.